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Child-persona: how to bring them to reality?

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Abstract

The purpose of the investigation described in this article is the creation of a Persona questionnaire, which will be used as reference to design a political educational game for children. There are several methodological strategies for the development of adult- based Personas that are used in information systems. However, there is little information on how to create Personas for systems used by children. Some questions we addressed in this context are: What kind of items can best characterize a child's lifestyle, needs, frustrations, and expectations? How to design questions in order to gather data efficiently? A three-phase methodology was designed to answer these issues: 1) Semi-structured interviews to access the most important aspects of lifestyle, needs, frustrations and expectations; 2) Creation and oral administration of a questionnaire aimed at verifying children's difficulties in answering questions; 3) Questionnaire review and application in a classroom situation with a different set of children. The results enable the development of a questionnaire focused on the child's characteristics. In the next phase of this study, this questionnaire will be applied to a sample of 500 children to create child-Personas for a political game.

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1. Introduction

Persona is a word derived from Latin and means mask, character or person. In the design context, it appeared for the first time in [1] and was used to represent the image of the typical user of a product or service. Since then, some other authors [2], [3] also tried to define the concept of persona and its applicability on software design process.

Very quickly, Personas have shown to be powerful tools. Thanks to their effectiveness, they became part of the technology industry routine. This growing appreciation of user participation during the various design stages originated the User-Centered Design technique (UCD) [4].

One of the great advantages of creating personas is that they reduce the designer's reliance on assumptions and on personal experiences with children or from their own childhood. This is a very common mistake according to [5], who identified several situation in which the UCD designer believes he is part of the potential user group.

If we look carefully at new technologies designed for children, we will see this type of misassumption is more common than what we observe in products for adults. Many technological innovations designed either for leisure or to for use in schools have been carried out without taking child's needs and abilities into consideration. On a literature review, we could not find many systematic methodologies that can be used to create child-Personas[6]. To some extent, this can be explained because young children have more difficulties to verbalize their thoughts, especially when it concerns abstract concepts and actions.

In this context, the followig questions emerge: What kind of information is necessary to create a trustfull Persona to the educational political game we want to develop? How to gather enough data to do so? Which questions may be included? How to write them? What type of scales should we choose?

Based on the outcomes of the literature review, we decided to design a specific questionnaire with the help of our target user: Brazilian students aged 10 to 14. Their feedback may be used to validate our assumptions.

We supported the main choices of our Persona's features in what [7] prescribes: name, photo, age, hobbies, school, friends, talents and attitudes. Then, based on [8] and [9] we decided to include gamers' preferences and players' styles as categories of our questionnaire. This choice was based on a recent research by [10] showing that the decreasing interest of young students in political issues can be fought with educational games. Consequently, we must find out what really amuses our user in order to develop a very fun and challenging game that engage them on our subject.

A five point rating scale was choosen as method of data collection in almost all the questionnaire items. This model is suitable for research beliefs and attitudes because it is a multiple indicator for a set of actions related to a particular area. [11]

The lack of interest in politics concerning Brazilian students may be justified by the difficulty school had to deal with the formation of active citizen, e.g., [12]. The game to be developed in the future will be hosted at www.plenarinho.leg.br, the children's website of the House of Representatives. Plenarinho, launched is 2004 is the result of a commitment made by this Institution to cooperate with the Brazilian educational system to create mechanisms to promote political education and active citizenship.

This article aims at showing the methodology used to design a questionnaire intended to create a child-Persona, which will be used as a reference during the development of a political educational game for children.

2. Methodology

This study was organized in three phases. The first one was the semi-structured interview. This phases's goal was to listen to the students and access the most important aspects of their lifestyle, needs, frustrations and expectations. Resulting data were checked against the questionnaire's previous items in order to decide which of them should be kept, modified or supressed. The second phase was intended to design and orally administer the questionnaire. It was the moment to observe the children's reaction to the questions and the choosen answer scale, and to keep collecting their impressions and feedbacks about the questionnaire. The third and last phase consisted on the formal application of the questionnaire on a classroom environment. Each phase was held with a different group os students. As the sample was composed of adolescents and children, the parents had been informed and had authorized their participation on the study.

At the beginning they were informed that this study aimed at collecting information which would help us to create a questionnaire to be used as reference for the development of an educational political game. Students were always invited to give feedback. Before starting we asked permission to record their voice, guaranteeing the confidentiality of data.

This study was carried out in two Brazilian schools in Distrito Federal - DF - and involved 110 students, aged 10 to 14, divided as shown on Tab 1. The public school is located in one of DF's poorest areas. Due to discrepancy between the highest and the lowest social economic classes in Brazil, we decided to also visit a private school located on an upper class quarter in DF. In this case, due to the lack of students' free time, the sample was smaller.

Table 1. Sample per phase

| | Phase 1 | Phase 2 | Phase 3 |
|----------------|---------|---------|---------|
| Public School | 14 | 10 | 73 |
| Private School | 3 | x | 11 |

2.1. Phase 1 – Semi- structured interview

The semi-structured interviews had been carried out individually, in a classroom. Before the interview, the students were informed that the purpose of the study was to know better about their interests and routines.

At the private school, the interviews took place in the library. Because the students had to occupy the same table, the interview ended up being in groups rather than individually. However, the collected information was registered separately.

We interviewed 10 girls and 7 boys, with an average age of 11,64 years, all attending from 6th to 8th grade. The interviews lasted on an average of 15 minutes and, even though we had a script, the students were free to add comments and propose different subjects.

Bellow, the questions that guided the interviews:

What is your preferred game?; What device do you like to play with? Computer, tablet, cellphone?; Do you have access to the Internet? Where do you have it? Do you use Internet for what? Study, have fun, communicate?; How is your typical weekday? And a weekend day?; What do you do which is not related to school?; What do you like best to do?; Which movie do you like the most? Why did you like it so much?; If you could travel now, where would you go?; What makes you choose a game?; What makes you quit a game?; Regarding the rules of a game, do you read them first?; 12. With whom do you live?

2.2. Phase 2 - Creation and questionnaire orally administered

The second phase was held in the library, during the physical education class. The students were sent individually to meet the interviewer. The questionnaire was applied to 7 girls and 3 boys, with average age of 12,5 years.

The questionnaire was composed of 41 items, organized as follows. The first 30 questions were divided into 2 categories (game preference and routines/style of life). Answers were given on a Rating type scale. The 5 following items were about internet use. The answer was to be given according to a frequency scale: always, sometimes, never. To identify preferred dressing style we showed them an image (Fig. 1) and they had to point out their preference. The last 5 items were not applied at this phase as they were intended to gather demographic data.

Based on feedbacks, the modifications were applied on the questionnaire itself, in order to be tested with the following student.

2.3. Phase 3 - Questionnaire's formal application

For the third phase, the questionnaires were given to the teacher who was responsible for its application. He was instructed to inform the students that they could ask for help in case they didn't understand what was being asked.

Since this was their first contact with the questionnaire written text, it was very important to observe how they would react to it. During the application, the researcher was in class to take notes.

The sample of 79 students was comprised of 47 girls and 32 boys with average age of 11,83 years.

3. Results and Discussion

Even though the sample displayed quite a great deal of disparity in socio-economic conditions between the students of the two schools the information we could harvest regarding their routines and preferences was not.

The main results of the first phase are displayed in Tables 2 and 3. They are not intended to characterize the participants themselves. This is what we intend to do later with the last version of the questionnaire. At this point, we are only interested in verifying whether the previous elaborated questions were in accordance with what these students think and with what they want.

3.1. Phase 1 - Interview results and discussion

Table 2. Game-preference results

| Category | Subcategory | Freq. | Excerpts from interviews |
|--------------------|---------------------------|--------|--|
| Game genres | Simulation | 58% | "fun on a game is when we are like ourselves in real" "fun is like having to take care of a real pet or baby" "fun is when game is a life situation, a construction" |
| | Adventure | 30% | "I like to choose the character, I like levels, fighting, defeating enemy, finding wellness" |
| | Action | 17% | "it's when one has to fight for what he want" "game has an animal that runs after us, then he suddenly disappears, but he still there and we have to continue to controlling our character, otherwise he dies" "I like fighting games" "It's cool because it is also jumping, running with the trains ... it also has phases" |
| Repulsive elements | Promise and not fulfil | 27,27% | "when you download the game and it's not what you want" "when the game promises one thing and it is quite another" |
| | Fear | 18,18% | "I don't like horror game" "It's death, I don't like it" "I do not like to be scared" |
| | Lose a lot / Getting lost | 18,18% | "when I lose a lot" "when I lose, I quit the game" "it's very annoying not know want to do" |
| Engaging elements | Explorer-investigators | 47,05% | "I like to accomplish the tasks and change to the next level" "it's endless, it always has another level to be played" "is an animal that runs after us, he suddenly disappears, but we have to continue to control him, unless he dies" |
| | Nurturers | 41,17% | "it's like having to take care of a pet or a baby" |
| | Life-system builders | 32,29% | "when is a life situation, a construction" "a game based on real life, that challenges us" |
| | Fighters | 29,41% | "I like levels, fighting, defeating the enemy, finding wellness" "I like fighting game" |
| | Collector-consumers | 29,41% | "I like Monopoly because when I play it, sometimes I got go to the bank, has a bit of everything, parking ... then we can have money to buy a car" "I like it because we can have money... I like this kind of games to relax. "he needs money because the policeman runs after him and he has to buy things" |
| | Power user | 17,64% | "I play like ... Kung Fu Panda, Ninja Turtles ... they have superpowers... Superman, Spider-Man" |
| | Social climbers | 11,76% | "I like when I play with my friends" "when I lose, I quit the game" |
| | Self-stampers | 11,76% | "fun on a game is being ourselves" "like a game with multiple characters to choose" |

Data from the interview were categorised using the classification proposed in [8] as shown on Table 2. They confirm that there was no disagreement between student's speeches and the items on the previous version of the questionnaire.

The thirteen following questions composed the first block of items relative to the sub-category "Genre" [7] and had not been modified after the interviews. They are: I like shooting games (action); 2. **I prefer games where I have to fight with the enemy (action)**; I like games with histories (RPG and adventure); 4. **I like games where I have to conquer another planet (strategy, adventure)**; I like games that defy my intelligence or my memory (strategy, puzzle); I like having to choose the characteristics of my character (RPG); I like racing games (simulation); 8. **I like constructing games (simulation, strategy)**; During the game, I like to receive tips to improve my performance (simulation); I prefer games that emulate real life (simulation); I prefer games where many things happen at the same time (action, sports); 12. **I like games where I can buy and sell goods (strategy and simulation)**; I like sports games (sport).

The fourteen next questions composed the second block of items aimed at identifying game style taking into account the two sub-categories "Genre" and "Engaging elements" --- see Table 2 --- following [10]. Once again, the main previous elements were in accordance with children's speech. However, concerning "Powerful" and "Fighter" styles, they didn't refer at any moment to the following features: "interested in death games and destruction", "I like showing and offering to others the benefits of my knowledge", "I like understanding how the game works". Moreover, although they have shown interest in collaborative games, none of them mentioned the desire to be better than the others, one of the "social climbers" characteristics.

We decided to keep the items related to those non-mentioned features because it is possible that children do not like to admit to have feelings that are not socially accepted. Because it was important to know their real prevalence among the bigger future sample, they were included as follows: Two of them were clearly put (questions 26 and 27 below) and four others were modified to movies main character preference. This dislocates the question from the children itself to one from the outside (questions 22, 23, 24 and 25).

Moreover, to prevent an excess of questions, when we found out that there were similarity between an item in block 1 and another in block 2, it we chose to keep only one of them, giving preference to those of block 1 (questions 2, 4, 8 and 12), displayed above in boldface. They also could identify, respectively, the traits "fighters", "explorers-investigators", "life-system builders" and "collaborators-consumers".

The eight following questions were not modified: I prefer to play in group (care taker, way); I prefer to play alone (way); I like games that show the performance of the participants (social climbers); I prefer collaborative games rather than the competition games (social climbers); I like helping my friends to solve their problems (powerful); I like games where I can make my avatar (self-stampers); I like playing and discovering what I must do to accomplish my objectives (powerful); I like links for the rules, but I only read them if I need (exploring).

The six new questions cited above: 22. **I prefer movies where the hero exterminates the enemy**; 23. **I prefer movies where the main character has many friends and is the most popular at the school**; 24. **I prefer movies where the hero has to save the planet**; 25. **I prefer movies where a group of friends play an adventure and they need to help themselves to reach a common objective**; 26. **I enjoy being the best in everything that I do**; 27. **I like games where I am always victorious**.

Two questions on beliefs were added because 20% of the pupils had said that they learn school subject from them. They were: The games help me understanding very difficult school subjects; I believe that people apply in real life what they learn with games.

The last two questions, on advancing in the game", had been included due to the heterogeneity on the age of the game user target. This information can be a decisive factor concerning inclusion or exclusion of a given age group. This will happen if the difficulty of doing tasks would be a strong reason to quit the game as indicated in Table 2. They are: I quit a game when the phases are very difficult; I enjoy games where phases become more difficult time by time.

Below, Table 3 displays the results regarding the category Routine/Lifestyle. As is apparent, there was no significant variance between children's speech and the previous items.

Table 3. Routine and life-style results

| Category | Subcategory | Freq. |
|-----------------------------|----------------------|--------|
| Weekly routine | Watching tv | 82% |
| | Study | 35% |
| | Chat with friends | 30% |
| Routine weekend | Go out | 70,58% |
| | Watching TV | 58,82% |
| | Chat with friends | 30% |
| What do you like to do best | Playing games | 41,17% |
| | Go out | 41,17% |
| | Watching TV | 11,76% |
| Travel Dreams | Cities in Brazil | 41,17% |
| | Disney (USA) | 29,41% |
| | Paris | 23,52 |
| Best preferred movie genre | Comedy | 47,05% |
| | Action | 41,17% |
| | Animation | 23,52% |
| Live with | Parents and siblings | 76,47% |
| | Mother and siblings | 23,52% |

The subcategories "school" and "play" were not included in the table 3 because 100% of respondents said they do these activities every week. The subcategories "dream trip", "best preferred movie genre", despite having been part of the semi-structured interview guide, were not included in the questionnaire. They were used primarily as a complement to information on "preferences" and "gamer style". The subcategory "live with" was maintained because it is very important for building Persona narrative.

Hence, this third block was composed of the following three question: When I have free time, I prefer to play on computer; When I have free time, I like going out; When I have free time, I prefer watching TV.

Regarding the results of demographic student's profile, they were not shown because they were not relevant at this point. They will return in subsequent studies, when the questionnaire is applied in the sample that will define the child-persona characteristics.

3.2. Phase 2 -Questionnaire orally administered results and discussion

Below are the questions after we changed them using the students' feedback:

I like movies where the hero destroys the enemy in the end; I like movies where a group of friends live an adventure and have to help each other to win; I like movies where the main character is the most famous person in the school and has many friends; I like movies where the hero will live on a new planet and will have to explore it; I like to win always; I like to help my friends resolve difficult issues of a game that I already know; I like puzzle or memory games; I like shooting games; I like games where I have to choose the features of my character; I like fighting games; I like sports games (football, etc.); I like racing games; I like games that mimic real life (build a city, care for animals); I like games that show the points of all participants; I like games that will tell stories; I like games where I can buy and sell things; I prefer playing in groups; I prefer games where participants have to help to win; I prefer games where participants compete with each other; When I download a new game, I read the rules before starting to play it; When I download a new game, I start playing and I try to figure out what I need to do; I quit a game when the phases are very difficult; I like games in which a phase is always more difficult than the other.

Regarding the Rating 5-point scale, students displayed some difficulty in understanding the difference between "I agree a little" and "I disagree a little". The responses varied mostly among the two extremes answers and the neutral one. Maybe this could be solved by, replacing numeric scale by an illustrated one.

They had no difficulties in answering the items about internet: I use the Internet for fun, I use the internet to study, use the Internet to download videos or music, I use the internet to get on social networks.

Figure 1 was used to identify preferences on dressing styles. The suggestions remarked were: to include a female character with short, shirt and sneakers, and also black characters.

Escolha apenas uma das alternativas abaixo .

Que tipo de roupa você gosta vestir?

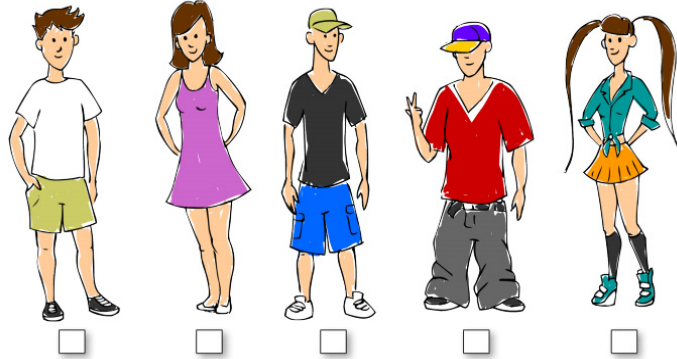


Fig. 1. Dressing- style image

3.3. Phase 3 - Questionnaire's formal application resultats and discussion

From 84 questionnaires applied, 5 were voided due to incomplection. Only a small number of changes were suggested. The word *hero* (Questions 1 and 4) has been replaced for *main character*, and the *soccer* example was removed from Question 12. The first change was made based on the criticism of the hero ideia which prevented children from paying attention to the broadest sense of the question.

Once again, students related difficulty in using the scale.

Final version questions:

Block 1 - Game preference

I like puzzle or memory games; I like shooting games; I like games where I have to choose the features of my character; I like fighting games; I like sports games; I like racing games; I like games that mimic real life (build a city, care for animals); I like games that show the points of all participants; I like games that unfolds stories; I like games where I can buy and sell things

Block 2 - Gamer style

I like movies where the main character destroys the enemy in the end; I like to always win; I like movies where a group of friends live an adventure and have to help each other to win; I like movies where the main character is the most famous person in the school and has many friends; I like movies where the main character will live on a new planet and have to explore it; I like playing in groups; I like to help my friends to solve difficult issues of a game that I already know; I like games where participants have to help someone to win; I prefer games where participants compete with each other; When I download a new game, I read the rules before starting to play it; When I download a new game, I start playing and I try to figure out what I need to do; I quit a game when the phases are very difficult; I like games in which a phase is always more difficult than the other; Games help me to understand school subjects that are very difficult; I believe that people apply in real life what they learn with games.

Block 3 - Routines and life style

When I have free time, I prefer to play on computer; When I have free time, I like to go out; When I have free time, I prefer watching TV; When I have free time, I like to chat with my friends; I use the Internet for fun, I use the internet to study, use the Internet to download videos or music, I use the internet to get on social networks; I live with my parents and siblings; I live with my mother or father and siblings; I have access to internet in my house; I access internet in my schooll; I access internet with my cellphone? I don't have access to internet at all; Style dressing

Block 4 - Demographic data

Age, genre, grade, schooll

4. Conclusion

Based on User Centered Design methodology, we designed a Persona creation questionnaire where results will be used as a reference for the development of a political educational game for children. The next stage will be the application of this questionnaire in an enlarged children sample. To ensure its quality, we were mainly interested in questions that could identify lifestyles, needs, and expectations of potential users of this type of game. We were also concerned in improve questions' design in order to ensure best usability for the questionnaire. In this regard, we followed a three-phase methodology.

The results indicated the choice was right. Accordingly to the interviews, it was possible to gather data using user's reality, which is more representative of their interests. The orally administered phase gave us the opportunity to listen their feedback and to see their reaction to questions, words, and to the scale chosen to the questionnaire. This helped us to redesign some questions in order to reflect the objectivity and simplicity required from the audience. The third stage was also very rich. It could indicate student's ability in understanding the written text of the questionnaire. After all, listening a question is quite different from having to read it. The former action evokes different cognitive abilities.

As it was not possible to replace the numerical scale by an illustrated scale, we believe it would be important to repeat this last phase in order to evaluate the impact of this changes on children's reaction.

Having children as part of the game development process is in the core of UCD technique. However, by including them in an even more embryonic moment of persona's conception proved to be very rich. If it is true that working with children remains a challenge, it is also true that use of more inductive methods and different methodologies help us to get closer to them.

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